REMARKS

The Final Office Action mailed July 14, 2003, has been received and reviewed. Claims 1 through 25 are currently pending in the application. Claims 1 through 25 stand rejected. Applicants propose to amend claims 1, 5, and 7 and respectfully request reconsideration of the application as proposed to be amended herein.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 6,430,547 to Busche et al. in view of U.S. Patent No. 6,236,907 to Hauwiller et al., further in view of U.S. Patent No. 6,026,399 to Kohavi et al.

Claims 1 through 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Busche et al. (U.S. Patent No. 6,430,547) in view of Hauwiller et al. (U.S. Patent No. 6,236,907), further in view of Kohavi et al. (U.S. Patent No. 6,026,399). Applicants respectfully traverse this rejection, as hereinafter set forth.

> M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:
> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claim 1-25 are improper because the elements for a prima facie case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art references must teach or suggest all the claim limitations.

Claims 1 and 6

Applicants submit that any proposed combination of the Busche reference in view of the Hauwiller reference and the Kohavi reference does not and cannot establish a prima facie case of obviousness under 35 U.S.C. § 103(a) regarding the presently claimed invention of amended independent claim 1 because, at the very least, the cited prior art does not teach or suggest all the claim limitation of the presently claimed invention as set forth hereinabove. Applicants submit that any proposed combination of the Busche reference, the Hauwiller reference, and the Kohavi reference does not teach or suggest the claim limitations calling for *"an act of inspecting the generated data set to provide statistical information for the data set,"* among other things.

The Office Action alleges that:

> Busche discloses a system including spatial data for a spatial environment (Fig 4; col. 2, lines 19-21). Busche further discloses an act of inspecting the generated data set to provide statistical information for the data set (col. 4, line 53-55).

Applicants respectfully disagree with the Office Actions' characterization of the Busche disclosure. The portion of Busche cited by the Office Action states, "Data mining involves many aspects of computing, including, but not limited to, database theory, statistical analysis, artificial intelligence, and parallel/distributed computing. Data mining may be categorized into several tasks, such as association, classification, and clustering" (Busch col. 4, lines 53-55). Simply mentioning that statistical analysis may generally be used in data mining does not teach the use of statistical analysis on a specific set of data selected as part of an overall process. The element in claim 1 of the present invention states *"an act of inspecting the generated data set to provide statistical information for the data set."* "The generated data set" is from the *"act of generating a data set from the spatial data . . . the data set being varyingly complex based on identified attributes."* In other words, in the present invention, the statistical information is provided on a data set that may be a portion of the overall spatial data and this data set is selected and varies in complexity based on identified attributes. Whereas, at best, Busche teaches a general use of statistical analysis, in data mining, and does not teach the advantages of when statistical analysis should be applied or to which portion of the data the analysis should be applied.

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In addition, while the Hauwiller reference discusses statistical analysis (FIG. 16; col. 16, lines 45-66), it only discusses the analysis in the context of preparing raw spatial data prior to storage and retrieval, such that future data mining might be more efficient. Once again, this does not teach the advantage of statistical analysis on a data set generated from the spatial data based on identified attributes.

Therefore, it would not be obvious, from the teaching and disclosure of Busche, or Busche in combination with Hauwiller, or Kohavi, that the statistical information should be provided for a data set generated from the spatial data based on identified attributes.

Additionally, Applicants have proposed amending claim 1 to add the element of "*an act of partitioning the spatial data into a training set and at least one modeling set . . .*" Applicants can find no teaching in the art of record directed toward partitioning into a training set and a modeling set, particularly as proposed in claim 1 relating to different possible methods of dividing the data. Therefore, Applicants submit that neither Busche, Hauwiller, nor Kohavi, either individually or in any proper combination teach, suggest or motivate Applicants' proposed claim element.

For these reasons, presently amended claim 1 and claim 6 depending from claim 1 are clearly allowable over the cited prior art of the Busche reference in view of the Hauwiller reference, and the Kohavi reference under 35 U.S.C. § 103. As a result, Applicants respectfully request that the rejections to claims 1 and 6 be withdrawn.

Claim 7

As with claim 1, applicants submit that any proposed combination of the Busche reference in view of the Hauwiller reference and the Kohavi reference does not and cannot establish a prima facie case of obviousness under 35 U.S.C. § 103(a) regarding the presently claimed invention of amended independent claim 7 because, at the very least, the cited prior art does not teach or suggest all the claim limitation of the presently claimed invention as set forth hereinabove. Applicants submit that any proposed combination of the Busche reference, the Hauwiller reference, and the Kohavi reference does not teach or suggest the claim limitations

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calling for *"a data inspection module for providing spatial statistics on the loaded data set,"* among other things.

The Office Action alleges that:

> Busche discloses a system including one or more spatial databases corresponding to one or more spatial environments, a system for knowledge discover from the one or more spatial databases, the system (Fig 4; col. 2, lines 19-21; col. 6, lines 10-15) comprising: spatial data modeling and analysis module (SDAM) for extracting knowledge from the one or more spatial databases (Fig 4; col3, lines 25-30, 35-40, the SDAM module comprising: a data generation and manipulation module for loading the data set from the one or more spatial databases based on designated attributes (col. 8, lines 20-25), **a data inspection module for providing spatial statistic on the loaded data set (col. 4, line 53-55);** . . .

Applicants respectfully disagree with the Office Actions' characterization of the Busche disclosure. The portion of Busche cited by the Office Action states, "Data mining involves many aspects of computing, including, but not limited to, database theory, statistical analysis, artificial intelligence, and parallel/distributed computing. Data mining may be categorized into several tasks, such as association, classification, and clustering" (Busch col. 4, lines 53-55). Simply mentioning that statistical analysis may generally be used in data mining does not teach the use of statistical analysis on a specific set of data selected as part of an overall process. The element in claim 7 of the present invention states *"a data inspection module for providing statistics on the loaded data set."* "The loaded data set" is a data set generated by *"a data generation and manipulation module for loading a data set from the one or more spatial databases based on designated attributes."* In this claim, the statistical analysis is being performed on the result derived from a generation and manipulation module based on designated attributes. Whereas, at best, Busche teaches a general use of statistical analysis, in data mining, and does not teach the advantages of when the analysis should be applied or to which portion of the data the analysis should be applied.

While the Hauwiller reference discusses statistical analysis (FIG. 16, col. 16, lines 45-66), it only discusses the analysis in the context of preparing raw spatial data prior to storage and retrieval, such that future data mining might be more efficient. Once again, this does not teach

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the advantage of statistical analysis on a data set generated from the spatial data based on identified attributes.

Therefore, it would not be obvious from the teaching and disclosure of Busche, or Busche in combination with Hauwiller, or Kohavi that the statistical information should be provided for the data set loaded as a result of the designated attributes applied in the data generation and manipulation module.

Additionally, the Office Action alleges that:

> Busche discloses a system . . . the SDAM module comprising: a data generation and manipulation module for loading the data set from the one or more spatial databases based on designated attributes (col. 8, lines 20-25), . . . **a data partitioning module for dividing the data set into homogeneous data segments which improve data modeling (col8, lines 58-63).**

Applicants respectfully disagree with the Office Actions' characterization of the Busche disclosure. The portion of Busche cited by the Office action states, "discretization involves grouping data into categories. For example, age in years might be used to group persons into categories such as minors (below 18), young adults (18 to 39), middle-agers (40-59), and senior citizens (60 or above)." While the present invention contains claims directed toward discretization, claim 7 does not. Applicants submit that the partitioning module is performing a function different from discretization. Discretization is generally used for reduction in complexity and execution time in the data mining operation. Whereas, partitioning in the present invention is used in for creating a training set useful for improving the modeling process. Further, Applicants submit that the process of discretization necessarily creates **non-homogenous** data segments since the process attempts to split data based on different values in a given category. As a result, the discretization described in the reference does not teach or suggest the *"data portioning module for dividing the data set into homogeneous data segments."*

To clarify this distinction, Applicants propose amending claim 7 to show *"a data partitioning module for dividing the data set into a training set and at least one modeling set . . . "* Applicants can find no teaching in the art of record directed toward dividing into a training set and a modeling set, particularly as proposed in claim 7 relating to different possible partitions for the data. Therefore, Applicants submit that neither Busche, Hauwiller, nor Kohavi, either

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individually or in any proper combination teach, suggest or motivate Applicants' proposed claim element

For these reasons, presently amended claim 7 is clearly allowable over the cited prior art of the Busche reference in view of the Hauwiller reference, and the Kohavi reference under 35 U.S.C. § 103 and Applicants respectfully request that the rejections to claim 7 be withdrawn.

Claims 16 and 22

Applicants submit that any proposed combination of the Busche reference in view of the Hauwiller reference and the Kohavi reference does not and cannot establish a prima facie case of obviousness under 35 U.S.C. § 103(a) regarding the presently claimed invention of independent claim 16 because, at the very least, the cited prior art does not teach or suggest all the claim limitation of the presently claimed invention as set forth hereinabove. Applicants submit that any proposed combination of the Busche reference, the Hauwiller reference and the Kohavi reference does not teach or suggest portions of the claim limitations calling for *"using the estimation of the predetermined parameter to accomplish a predetermined purpose, wherein the predetermined purpose includes at least one of determining how the predicted variable affects a predetermined target variable, **providing recommendations as to how to achieve a predetermined target variable, and creating new spatial data mining methods.***"

The Office action addresses the predetermined purpose of determining how the predicted variable affects a predetermined target variable. However, Applicants do not see that the cited references (namely Hauwiller col. 4, lines 36-40, lines 48-52, lines 23-26, and lines 5-35) supporting the rejection of this element of claim 16 address the other predetermined purposes of "providing recommendations as to how to achieve a predetermined target variable, and creating new spatial data mining methods."

Applicants submit that a prior art reference must be considered as a whole including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.,* 220 USPQ 303 (Fed. Cir. 1983). Hauwiller teaches, "recommendation equations or application rate equations are formulas which express the relationship between existing field conditions and desired output. The expert system 216 may utilize pre-defined recommendation

equations as illustrated by block 226 or user specified recommendations as indicated by block 208b for correlating desired data relative to desired output" (col. 9, lines 16-22). Both "pre-defined recommendation equations" and "user specified recommendations" suggests *a priori* development of the recommendations. As a result, Hauwiller would suggest against, or at least lead away from, "*using the estimation of predetermined parameters to . . . provide recommendations as to how to achieve a predetermined target variable.*" In other words, the prior art suggests using pre-defined recommendations rather than the present inventions claim of generating recommendations as to how to achieve a target variable as part of the result of the spatial data mining process.

Additionally, Applicant's can find nothing in the cited references of Hauwiller, Busche, or Kohavi, teaching, "*using the estimation of predetermined parameters to . . . create new spatial data mining methods.*"

For these reasons, claim 16 and claim 22 depending from claim 16 are clearly allowable over the cited prior art of the Busche reference in view of the Hauwiller reference, and the Kohavi reference under 35 U.S.C. § 103. As a result, Applicants respectfully request that the rejections to claims 1 and 6 be withdrawn.

Claim 23

As with claim 16, applicants submit that any proposed combination of the Busche reference in view of the Hauwiller reference does not and cannot establish a prima facie case of obviousness under 35 U.S.C. § 103(a) regarding the presently claimed invention of independent claim 23 because, at the very least, the cited prior art does not teach or suggest all the claim limitation of the presently claimed invention as set forth hereinabove. Claim 23 contains the same element as in claim 16 of "*using the estimation of the predetermined parameter to accomplish a predetermined purpose, wherein the predetermined purpose includes at least one of determining how the predicted variable affects a predetermined target variable, **providing recommendations as to how to achieve a predetermined target variable, and creating new spatial data mining methods.***" Applicants herein sustain their above-arguments relating to lack of disclosure and leading away by Busche and Hauwiller with regard to this element.

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Therefore, Applicants submit that neither Busche nor Hauwiller, either individually or in any proper combination teach, suggest or motivate Applicants' invention as claimed in independent claim 23. Applicants respectfully request that rejection to claim 23 be withdrawn.

Claims 2-5

Claims 2-5 are now allowable as dependent claims of the now allowable independent claim 1.

Claims 10-15

Claims 10-15 are now allowable as dependent claims of the now allowable independent claim 7.

Claims 17-21

Claims 17-21 are now allowable as dependent claims of the now allowable independent claim 16.

Claims 24-25

Claims 24-25 are now allowable as dependent claims of the now allowable independent claim 23.
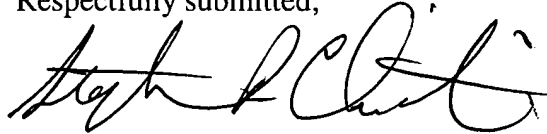
ENTRY OF AMENDMENTS

The proposed amendments to claims 1, 5, and 7 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Finally, if the Examiner determines that the amendments do not place the application in condition for allowance, entry is respectfully requested upon filing of a Notice of Appeal herein.

CONCLUSION

Claims 1-7 and 10-30 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,

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